

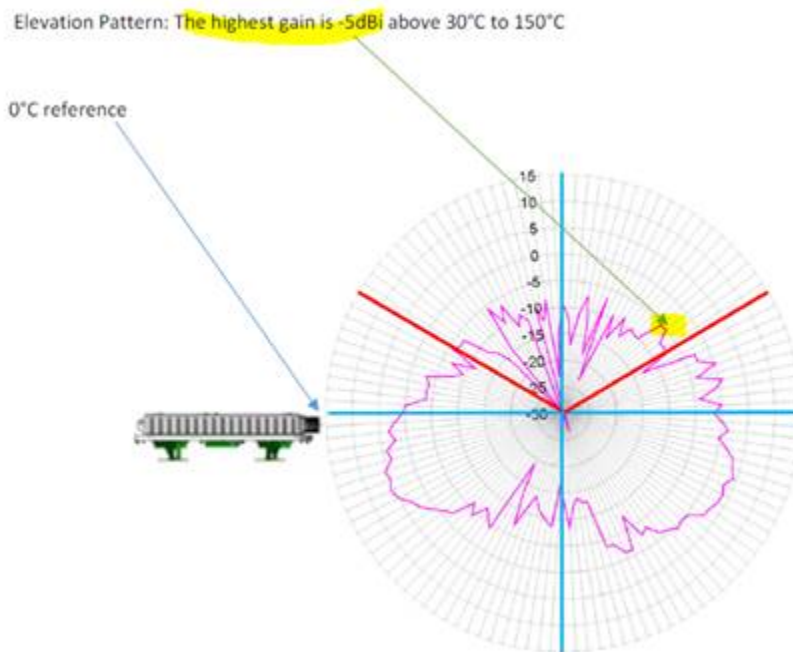
H. Measurement of emission at elevation angle higher than 30° from horizon

In addition to the emission limits specified in Section 15.407(a)(1)(i), if the access point is an outdoor Point-to-Multipoint device operating in the band 5.15–5.25 GHz, the rules require that the maximum EIRP at any elevation angle above 30° not exceed 125 mW (21 dBm) as measured from the horizon.

The equation below in the T811 elevation plane radiation pattern explains this requirement. The maximum EIRP at any elevation angle above 30° not exceed 125 mW (21 dBm)

Maximum EIRP in 5150 – 5250 MHz band = 25.87 dBm + Antenna Gain

Maximum EIRP above 30 degree from Horizontal = 25.87 dBm + -5 dBi = 20.87 dBm



This restriction leads to a general requirement for the antenna pattern: if the EIRP within 3 dB elevation beamwidth of any radiation lobe is higher than 125 mW, this lobe must be controlled, either mechanically or electrically, so that the 3 dB elevation beamwidth of this lobe is below 30° elevation angle relative to horizon.

Declared by Ruckus, the antenna do not have any radiation lobe whose EIRP is higher than 125 Mw within 3 dB elevation beamwidth.

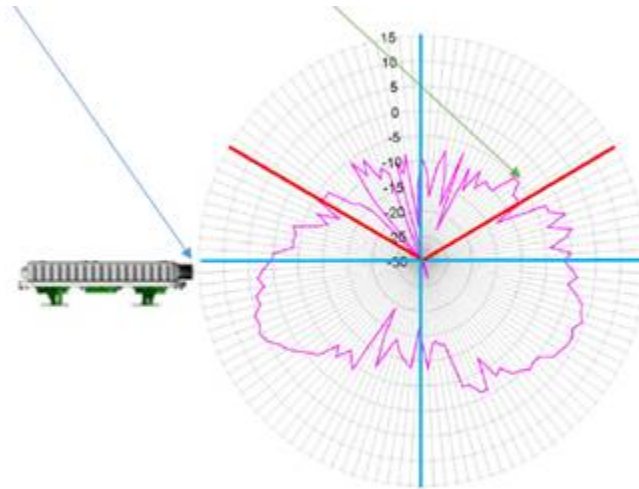
So it is fixed infrastructure without electrically or mechanically antenna beam tilt, that means already meet the requirement. Then go to No.1 requirement below.

For the purposes of compliance, information for all the antenna types must be included in the filing. In order for antennas to be considered of similar type, the antenna patterns must also be similar as well as other characteristics of the antenna.

Note: For the sake of clarity, we define the elevation angle where 0° is horizontal and 90° is straight-up.

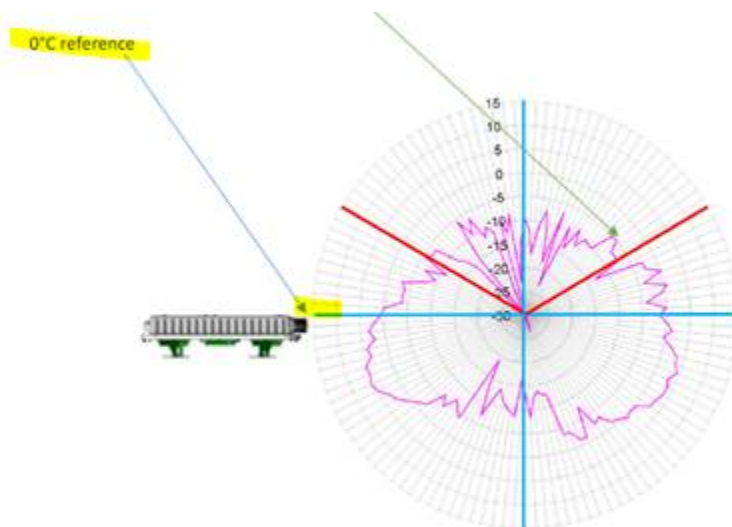
1. For fixed infrastructure, not electrically or mechanically steerable beam antenna

a) If elevation plane radiation pattern is available: **Yes. We have the radiation pattern.**

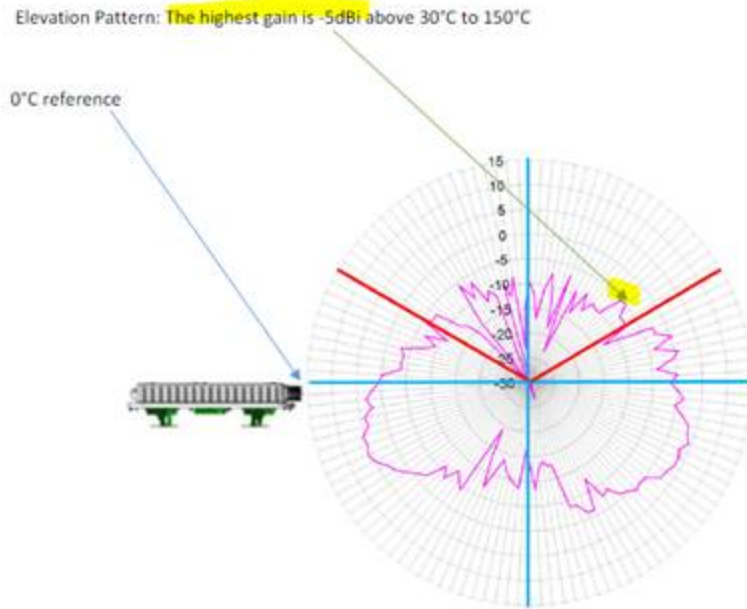


i) Determine the device intended mounting elevation angle and define 0° reference angle on the elevation plane radiation pattern.

Highlighted below in yellow shows the 0° degree reference.



ii) Indicate any radiation pattern between 30° and 90° which has highest gain.



iii) Calculate the EIRP based on this highest gain and conducted output power.

With highest gain, and measured conducted output power from the testing report, we can get the EIRP as below:

Maximum EIRP in 5150 – 5250 MHz band = 25.87 dBm + Antenna Gain
 Maximum EIRP above 30 degree from Horizontal = 25.87 dBm + -5 dBi = 20.87 dBm

iv) Compare to the limit of 125 mW to find compliance.

Compare the EIRP calculated from iii) above to 21dBm. Compliance!

v) Include the elevation pattern data in the application filing with the test report to show how the calculations are made.